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ABSTRACTS

Oils and Fats

Edited by
W. F. BOLLENS and M. M. PISKUR

Hydrocracking of animal and vegetable oils, fats and waxes. Yoshiomi Yendo. *Bull. Inst. Phys. Chem. Research* (Tokyo) 13, 1373-94 (1934).—The yield and d. of "gasolines" obtained by the hydrocracking of oils, fats and waxes have been detd. Waxes gave the best results. Similar results have been obtained with oleic and stearic acids.

B. C. A.

Irradiation of fats. I. A. standardized method of use of ultraviolet light. Leslie H. Lampitt, Norman D. Sylvester and Philip Bilham. *Biochem. J.* 29, 1167-74 (1935).—A quartz Hg lamp was arranged to irradiate vertically a cell contg. the fat and also to throw a beam horizontally upon a photoelec. cell connected to a microammeter. By substituting a calibrated thermopile for the cell, the photoelec. cell was standardized and the abs. amt. of light reaching the fat could then be detd. during an irradiation expt. By using the same standardized conditions, reproducible results were obtained on butter fat and the oxidative changes were measured by chem. tests. E. W. SCOTT.

The synthesis of fats. I. Manufacture of synthetic tallow and butter. Sei-ichi Ueno. *J. Soc. Chem. Ind., Japan* 38, Suppl. binding 237-41 (1935).—"Oil foots" from alkali refining of fish oils contg. 10-20% of the original oils were completely sapond. with NaOH and decompd. with dil. H_2SO_4, and the mixed fat acids were washed with hot water. Synthetic tallow was prepd. by fractional distn. of the fat acids under reduced pressure. From 700 g. (acid no. 134) a solid portion of 170 g. (acid no. 208.0) and a liquid portion of 130 g. (acid no. 185.5) were obtained. The distd. fat acids were esterified with glycerol, and the product had an acid no. of 5.0 and an I no. of 51.0. The fat was hydrogenated with a Ni catalyst, and the product had an I no. of 30.0 and a m. p. of 47.0°. Purified fish oils were further sapond. with NaOH and salted out with NaCl soln., the soap decompd. with H_2SO_4 and the crude mixed fat acids washed with hot H_2O and hydrogenated with a Ni catalyst at above 200°. Repeated fractional distn. with steam gave a fraction which upon esterification with glycerol resulted in a product having a compn. similar to that of natural tallow. Synthetic butter was prepd. by reësterification, chiefly from mixts. of hydrogenated fish oils and a lower fat acid such as butyric acid. Fifteen expts. reported show that the presence of glycerol and of a catalyst capable of inducing the evolution of H are essential, while adsorptive substances are of no importance. The synthetic fats had a butterlike odor and were satisfactory for cooking and table use.

KARL KAMMERMEYER.

Methods of decolorizing tea-seed oil. Hsuin-Tsi Yü. *Nanking J.* 1, 213-18 (1931).—A mixt. of 25% kaolin and 20% animal charcoal is most suited for the decolorization of tea-seed oil. Comparative results with other decolorizing agents are reported.

C. L. TSENG.

Summary of work done under the botanist in Sind Agricultural Research Station, Sakrand, for the year 1932-33. [Oil seeds.] K. I. Thadani. *Ann. Rept. Dept. Agr. Sind* 1932-33, 94-100 (1934).—The Pusa Yellow, Punjab, Pusa Chocolate and Lorido varieties of soybeans, grown in Sind, contained oil 16.80, 17.32, 19.71, 17.86; free fat acids 0.75, 1.05, 1.14, 1.11; albuminoids 38.22, 34.58, 31.79, 22.72; and H_2O 10.38, 10.10, 10.21, 11.80%, resp. Safflower, linseed, castor, sunflower, mustard and rapeseed, grown in Sind, contained oil 30.53, 37.15, 47.04, 29.18, 30.53, 39.20; and free fat acids 1.41, 1.09, 0.55,—, 1.41, 0.92%, resp.

K. D. J.

The partial hydrogenation of fish oil. II. The general course of the hydrogenation of sardine oil. Masakichi Takano and Yoshio Kumeno. *J. Soc. Chem. Ind., Japan* 38, Suppl. binding 252-4 (1935); cf. *C. A.* 28, 354[1].—A Hokkaido sardine oil having the properties I no. 175.7, sapon. no. 105.7 and acid no. 0.49 was hydrogenated to various I nos. at 220 ± 5° with a Ni catalyst. The fat acids were sepd. and analyzed for the formation of bromides insol. in Et_2O and petroleum ether, and the Br contents were detd. The exptl. data show that the Et_2O-insol. bromides decrease steadily with decreasing I nos. and are almost absent at an I no. of 111.1. As hydrogenation progresses the highly unsatd. fat acids are hydrogenated faster, being converted into lower unsatd. acids and then into unsatd. acids of the oleic series or satd. acids. Until the disappearance of the highly unsatd. acids is almost complete, the lower unsatd. acids, giving the petroleum ether-insol. bromides, remain almost unchanged, and when these acids are converted to the unsatd. acids of the oleic series, hardly any satd. acids are formed. The fact that neutralization values of the solid acids are markedly higher than those of the liquid acids shows that hydrogenation occurs selectively in regard to the unsatd. acids of higher mol. wt. KARL KAMMERMEYER.